



Confronting the Growing Threat of Wildfires: Urgent Actions and Impacts

Fire alarm play



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Analyzing California Wildfires from 2008-2022

Purpose

- ❖ This project sheds light on the devastating impact of wildfires in California from 2008 to 2022, using data to reveal patterns in frequency, damage, and high-risk areas.
- ❖ Initially intended as an educational tool, our findings emphasize the urgent need for immediate action to address the growing wildfire threat.

Project Objective

- ❖ Analyze historical wildfire data from 2008-2022 by county in California.
- ❖ Focus on the number of fires, their duration, the area affected, and the impact on human lives (deaths, injuries, financial losses).
- ❖ Provide insights into the frequency, severity, and impacts of wildfires.

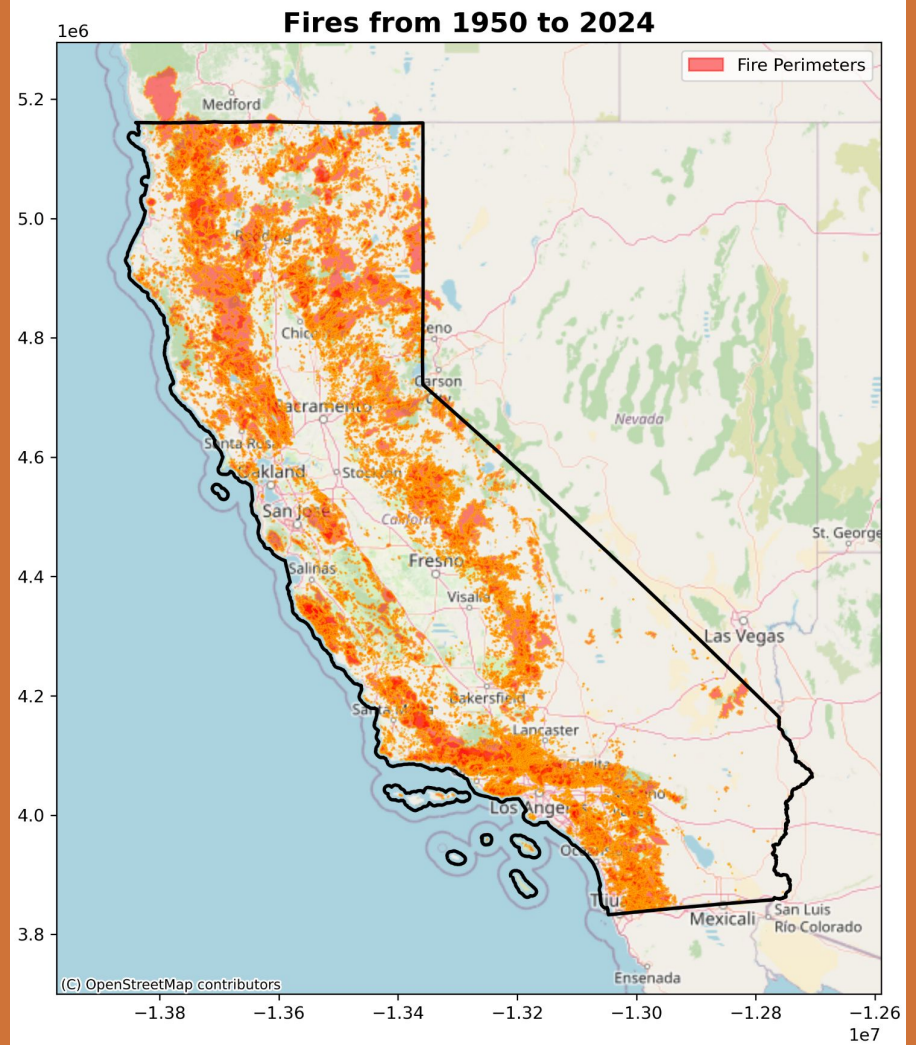
Key Metrics Analyzed

- ❖ **Fire Frequency and Distribution:** Number of fires over time and their geographic distribution by county.
- ❖ **Fire Severity:** Area burned and duration of fires.
- ❖ **Human Impact:** Total number of deaths of civilians and fire fighters.
- ❖ **Financial losses include direct costs:** property and content losses from fire, smoke, water, and post-fire inspection.
- ❖ **We analysed statistics by year, by month, and by county.**

Visualization Strategy

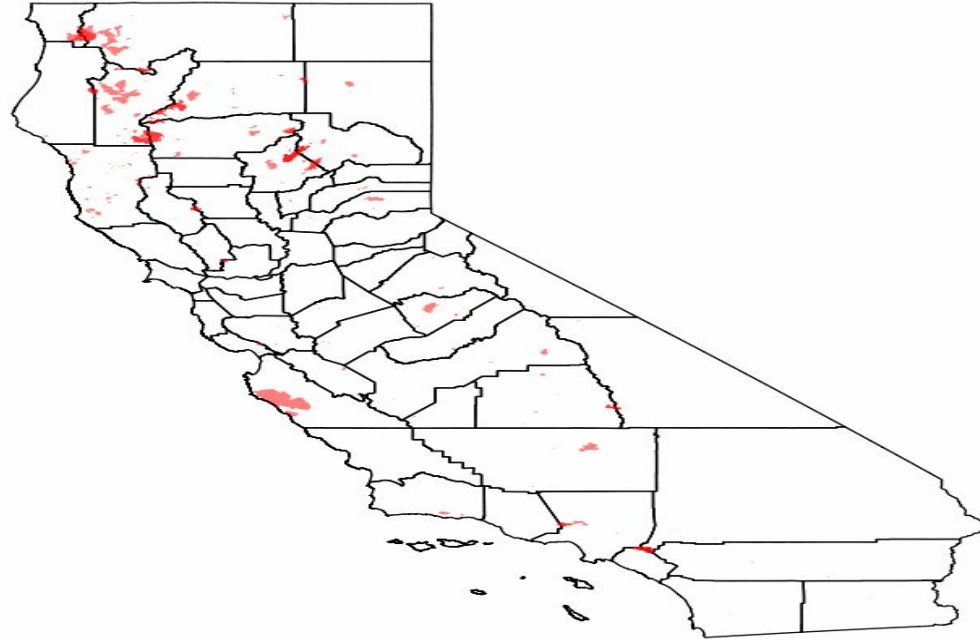
- **Interactive Map:** County-level fire statistics. [\[Link\]](#)
- **Static Charts:** Trends in fire metrics over time.
- **Interactive Dashboard:** Annual fire stats by year on an HTML page. [\[Link\]](#)

These are just a few snapshots. Visit the links for a complete view of our visualizations.



Fire Progression in California, 2008 - 2022

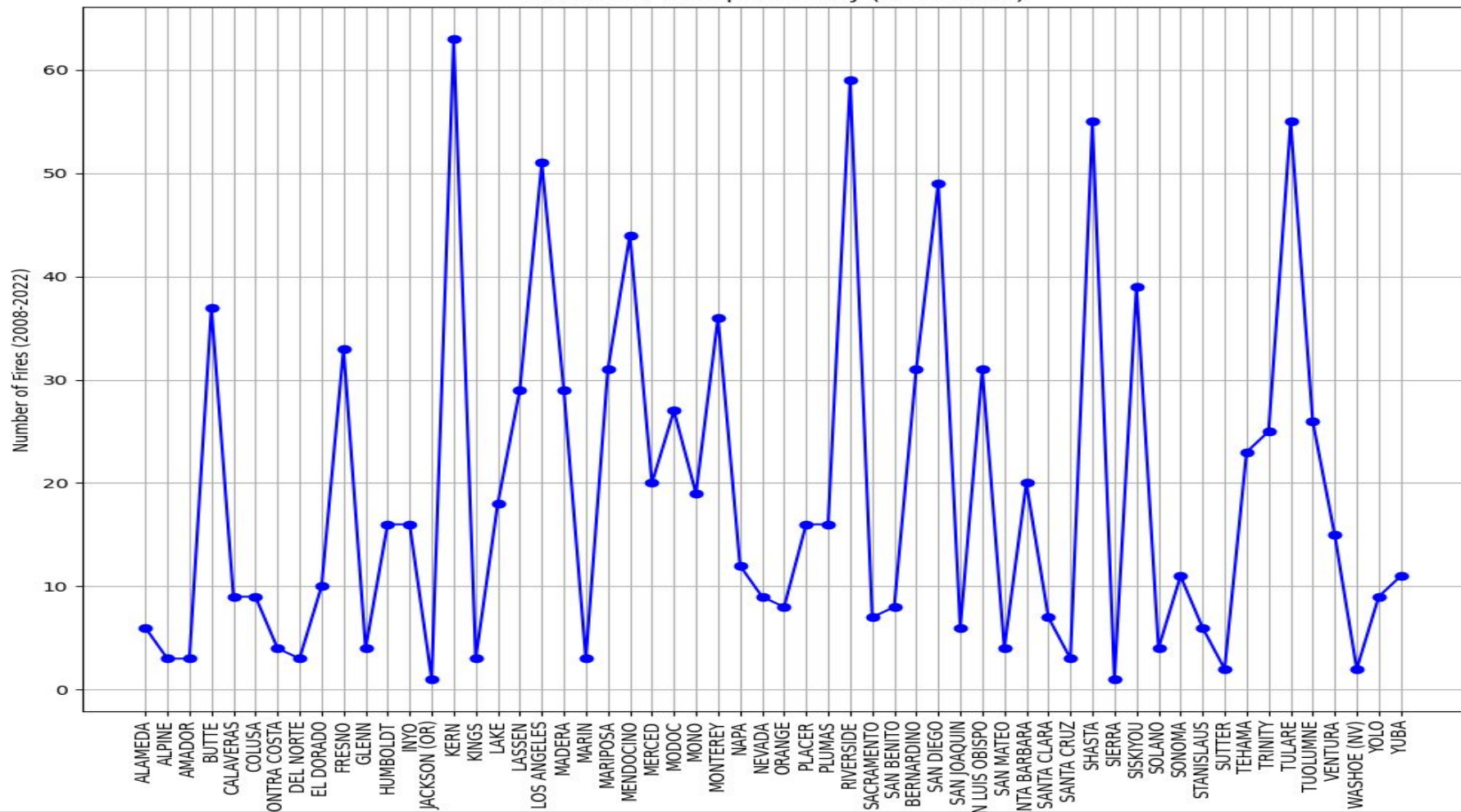
Fire Progression in California: 2020

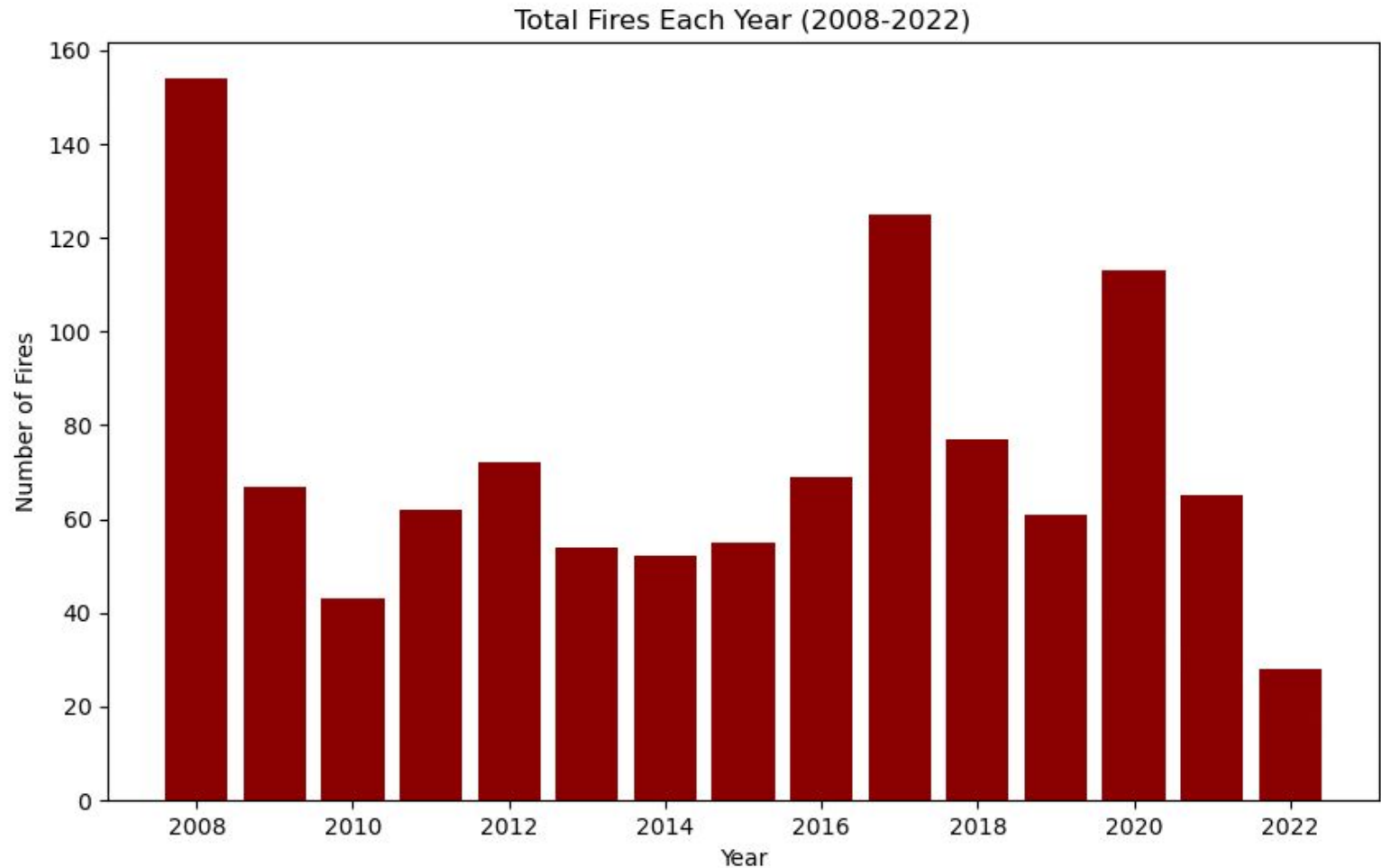


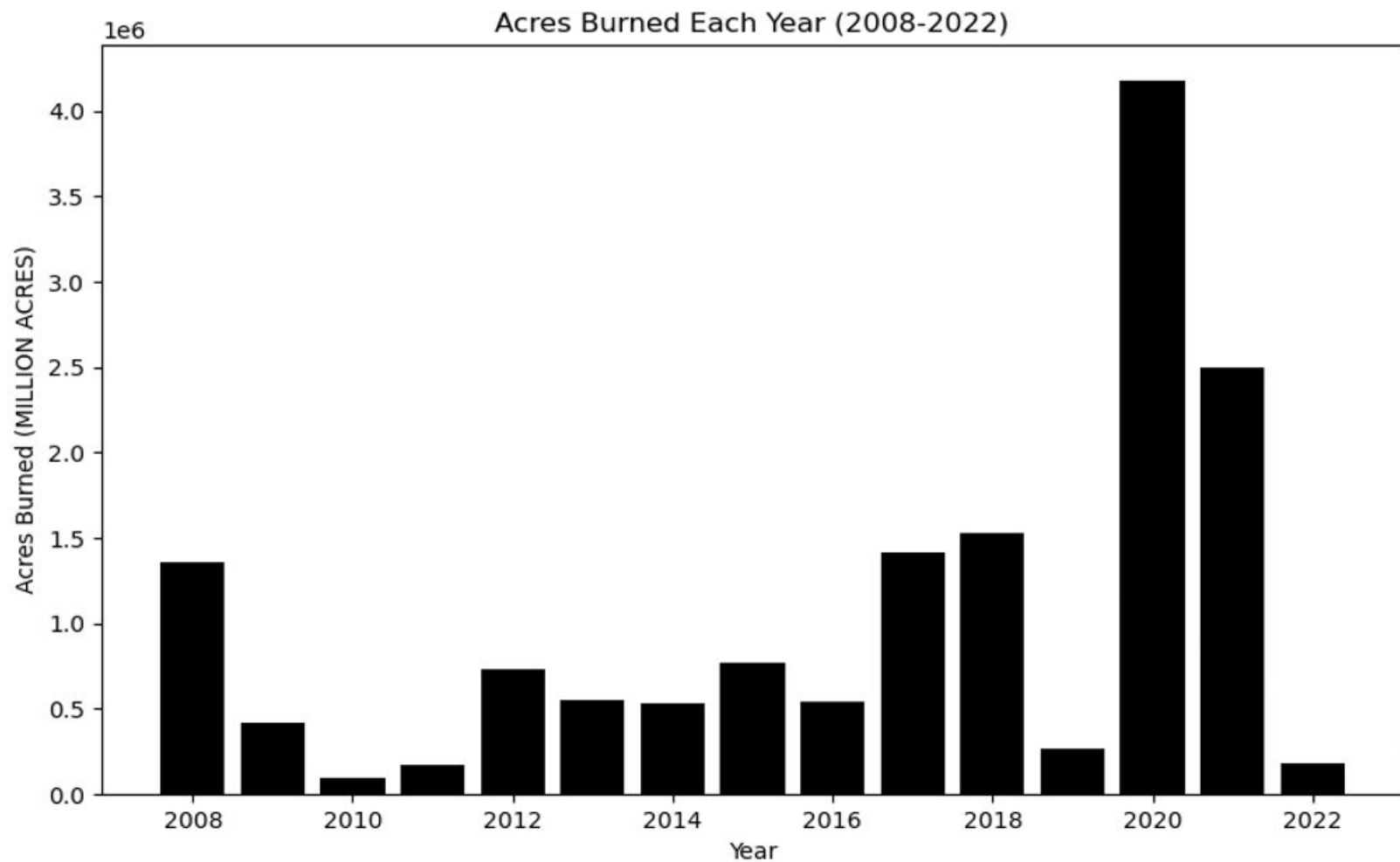
Fire Trends Year Over Year

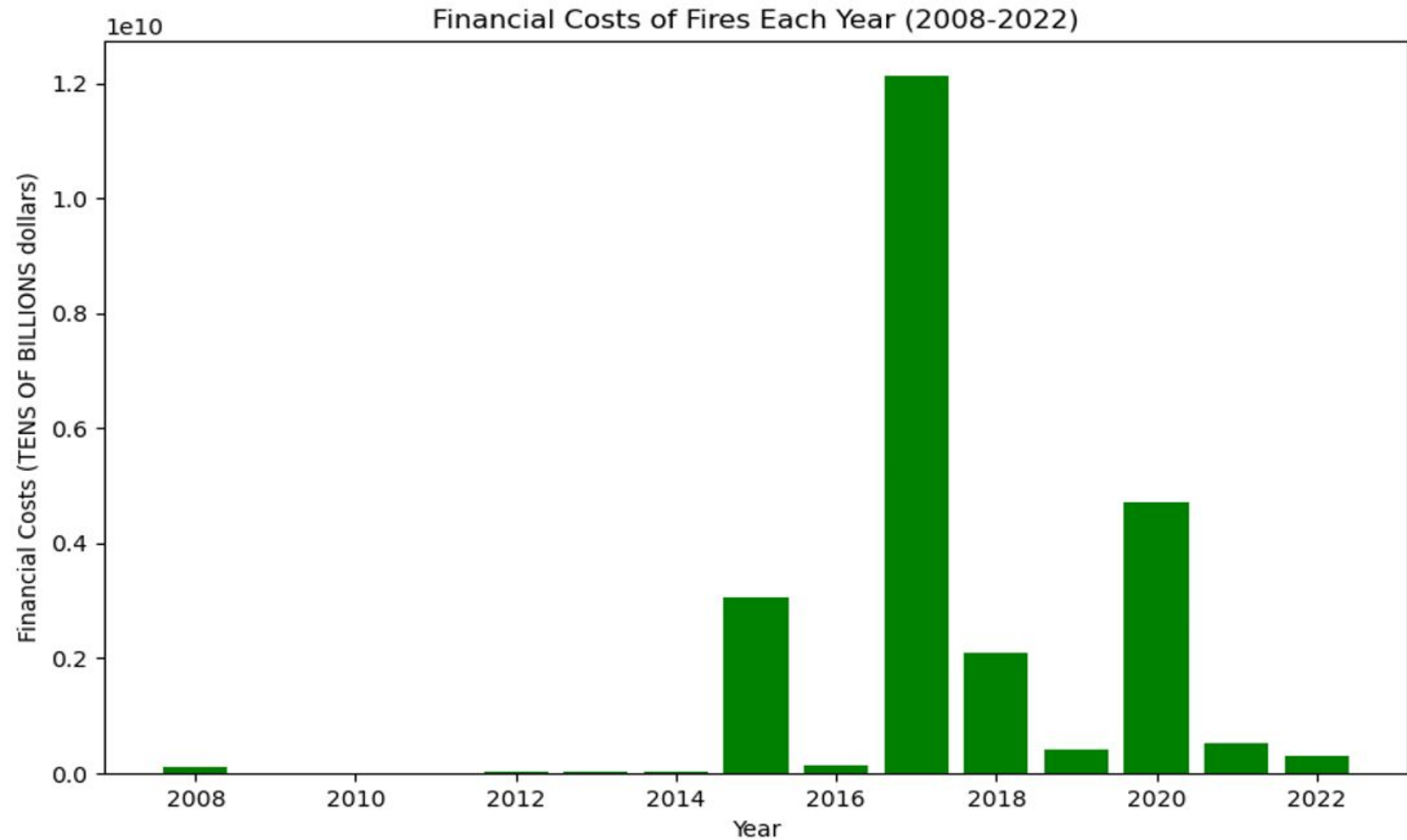
1. Number of fires by county
2. Bar/Line graph: Number of fires each year from 2008 to 2022
3. Bar/Line graph: Financial costs of fires each year from 2008 to 2022
4. Bar/line graph: Acres Burned each year from 2008 to 2022
5. Bar/Line graph: Median Duration of fires each year from 2008 to 2022
6. Bar/Line graph: Number of death (civilian + firefighters) each year from 2008 to 2022

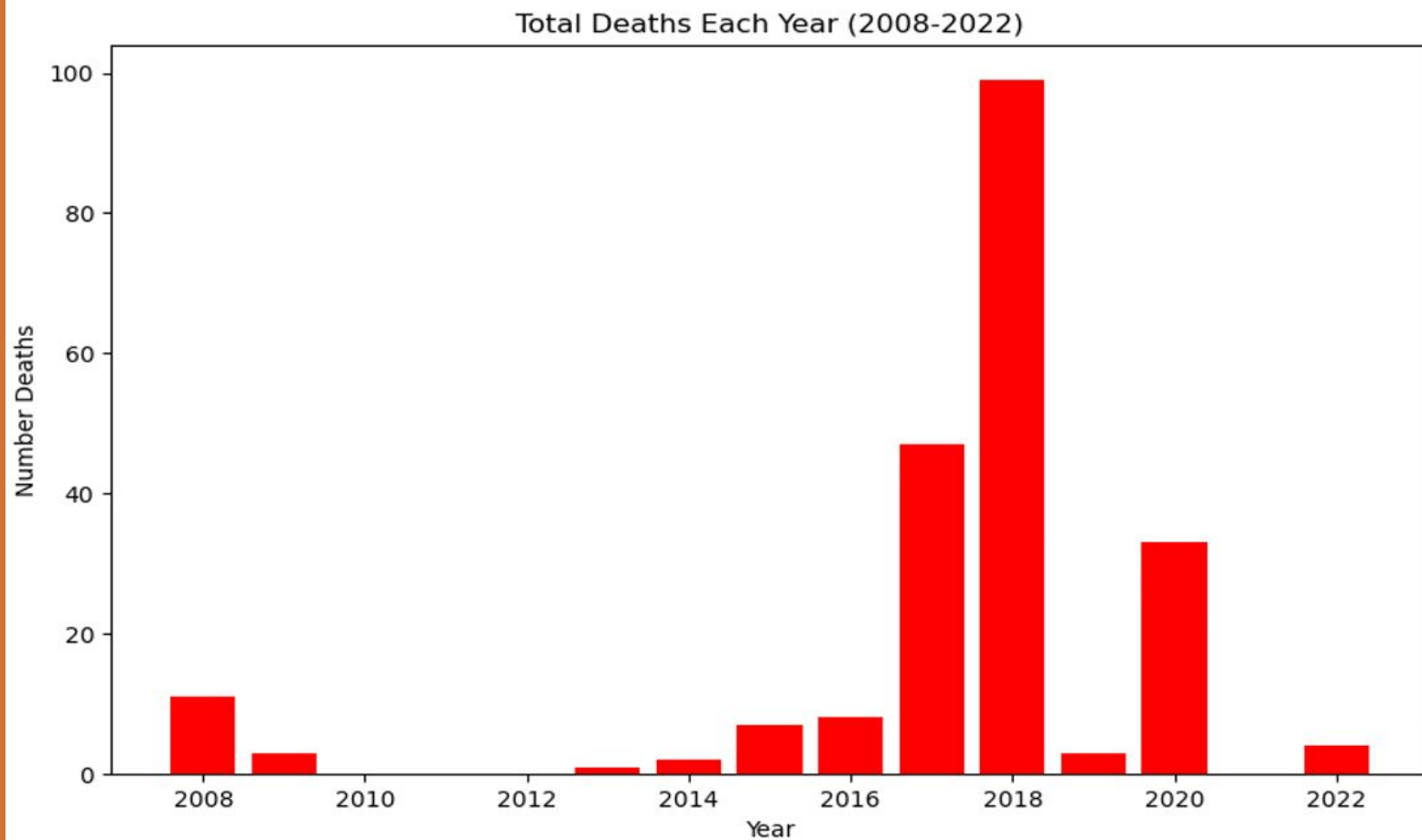
Number of Fires per County (2008-2022)



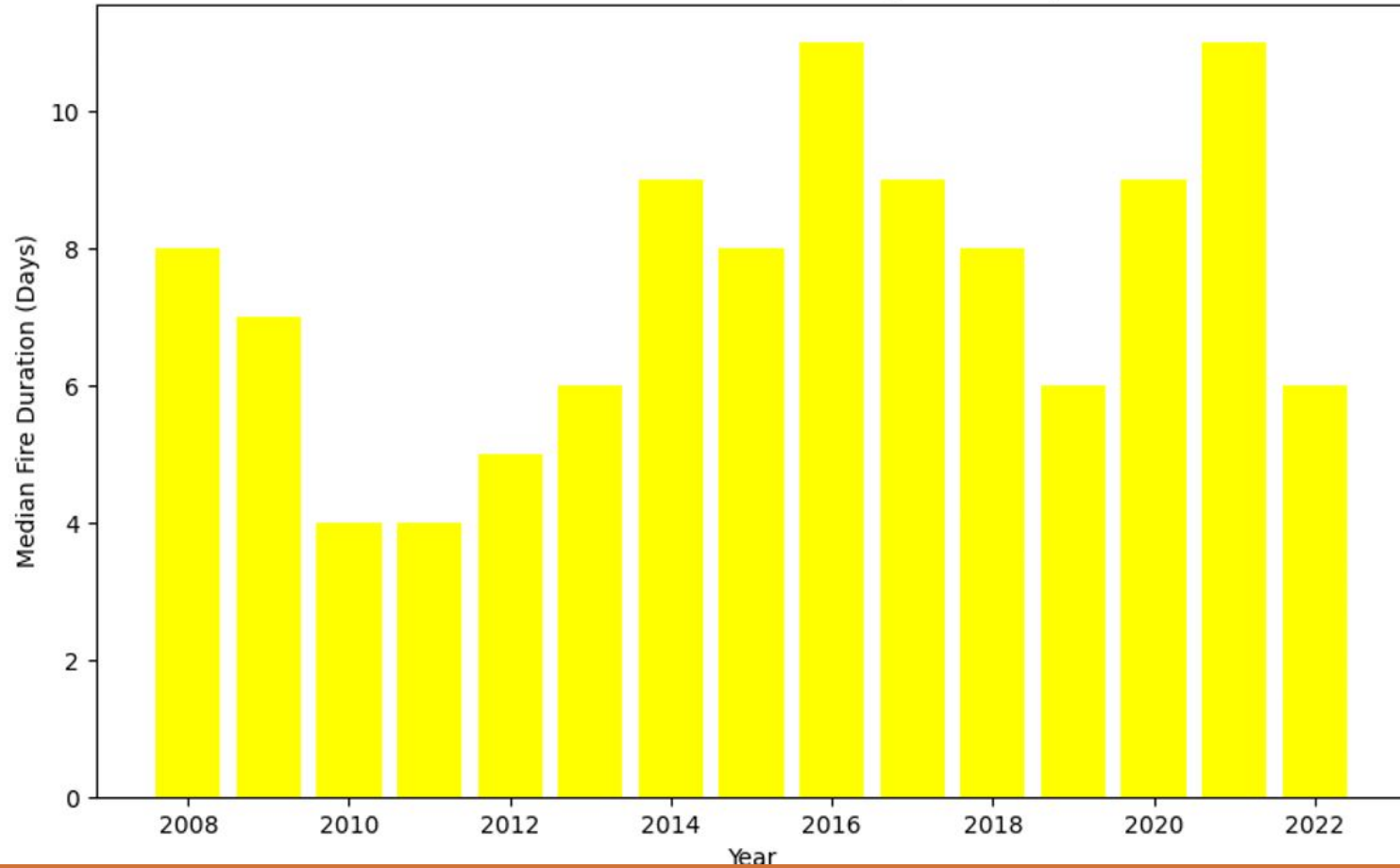








Median Fire Duration Each Year (2008-2022)



Snapshot: Key Stats of 2017. [Interactive link](#) with more information

Annual Fire Statistics Dashboard

Select a year from the dropdown menu below to view relevant fire statistics. The dashboard will update automatically to reflect the selected year's data.

Select Year:

Total Stats for the Year

Total Fires This Year: 125

Total Acres Burned: 1,418,515

Median Fire Duration: 9

Total Deaths: 47

Total Financial Damage, \$: 12,135,267,702



Total Fires Each Month in 2017



Some Yearly and Overall Insights

The highest **number of fires** was occurred in 2008, equal to **154**.

The highest **financial losses** were estimated in 2017, exceeding **\$12 billion**.

The highest number of deaths was registered in 2018, equal to **99 people**.

The largest area was affected in 2020, when over **4 million acres were burned**.

Overall Summary for 2008 - 2022 (15 years)

Parameter	Number
Financial losses	over \$23 billion
Number of Deaths	218
Area Burned	over 15 million acres
Total number of fires	1,098

We urge you to take steps to address the issue

- ❖ **Home Fireproofing:** For tips on using fire-resistant materials and creating defensible spaces around your home, visit the [CAL FIRE Ready for Wildfire](#) page.
- ❖ **Grant Opportunities:** Check the [Grants and Funding](#) page to see if you qualify for any wildfire prevention grants, including those from the [Marin Wildfire Prevention Authority](#).
- ❖ **Advocacy:** Advocate for stronger fire prevention policies by encouraging local and federal governments to invest in forest management, public education, and soil moisture improvement strategies.

Conclusion

Overall: The data underscores the unpredictable nature of wildfires and their increasing severity. While the frequency of fires fluctuates, the damage—both economic and human—demands urgent and sustained preventive measures. Now is the time to take action to protect lives and properties from future catastrophes.

Key Takeaways

1. **County-Level Risk:** Review localized fire statistics and risk assessments to understand the fire risks in your county.
2. **Economic Impact:** California's fires cost over **\$12 billion** in 2017 alone, with total damages from **2008-2022** exceeding **\$24 billion** (excluding human and environmental costs).
3. **Yearly Statistics:** Explore detailed yearly statistics and additional charts provided in our presentation.
4. **Policy Implications:** Support stronger fire prevention measures at all government levels. Prevention could be more cost-effective than enduring catastrophic wildfire damages.
5. **Real Estate Risks:** Factor in fire risks when buying property in California, as they significantly impact insurance costs and overall safety.

Data Limitations

- Our data included fires with sizes of 300 and more acres as fires below that sized did not effectively tracked by state or other officials. That means that the actual number could be higher, but their impact was not as harmful as larger fires.
- Financial losses here are just the basics—property and content damage from fire, smoke, water, and overhaul. We're not even touching on fire suppression costs, business downtime, or those skyrocketing insurance premiums.
- We tracked fires based on their country of origin to accurately assess their impact. However, due to the reuse of over 117 fire names across different counties between 2008 and 2022, monthly metrics like the number of fires, acres burned, and deaths may be slightly off. Our analysis focuses on yearly statistics, which remain unaffected and are key to our objectives."

Ethical Consideration



- In our fire analysis project, we focused on ethical considerations, ensuring transparency and accuracy in our data.
- While PII wasn't an issue since we used only general statistics, we were careful to avoid bias and misleading conclusions, especially regarding financial losses and human impact.
- We also remained aware of potential algorithmic biases in automated processes, citing data limitations and always aiming to maintain trust and uphold the integrity of our work.

Data Sources and Project Participants

- ❖ California State Geoportal
- ❖ Youtube link for fire alarm
- ❖ **Adobe Stock** - Image for the title presentation page



- ❖ **Project #6 Participants**
 - ★ Theresa Fregoso
 - ★ Scott Johnson
 - ★ Sabrina Linden



Q & A

Please do not forget to **check** our page
to check statistics and **risks of your
county!**

Thank you for your attention!

Please stay safe!

THANK YOU

